

badly exposed in all the specimens. This species, defined by larger size, longer diastema, larger ovate roots of the decol-
lated teeth, and relatively less depth of the jaw, is provisionally
indicated as *Gomphognathus* (*Diastemodon*) *dimorphodon*.
The differences from *Gomphognathus kannemeyeri* in the types
of premolar teeth conveniently separate *G. polyphagus* and
this species as the subgenus *Diastemodon*.

The figure is of the natural size and shows the aspect
from above. The specimen is in the South-African Museum,
Cape Town. I am indebted to the Trustees for the oppor-
tunity of making this further examination of the fossil.

XLVI.—Notes on the Forficularia.—XIV. *A Revision of the
Pygidicraninae.* By MALCOLM BURR, B.A., F.E.S.,
F.L.S., F.Z.S., &c.

MOST of the species referred to in the following notes have
been hitherto included in the capacious genus *Pygidicrana*,
Serville. An examination of the material in my own
collection, with a view to revising the somewhat arbitrary
arrangement of de Bormans, has induced me to establish
some new genera, based chiefly on characters which have not
hitherto been employed in this genus.

The group-name was invented by Verhoeff, who divided it
into *Pygidicraninae* for the type genus and *Pyragrinae* for
Pyragra, *Echinosoma*, and perhaps *Echinopsalis*. These last
genera are not discussed in these pages. They represent the
transition towards *Labidura*. The femora are neither com-
pressed nor keeled, the elytra are stronger at the axillary
angle, and consequently the scutellum is only present as an
exception in *Pyragra* and never in the other genera, in which
the pronotum extends well over the insertion of the elytra.
Pyragra is in many respects undoubtedly allied to *Pygidi-
crana*, but *Echinosoma* shows the transition through *Echino-
psalis* to *Psalis*, *Labidura*, and *Anisolabis*.

In the *Pyragrinae* the pronotum is always transverse, in
the *Pygidicraninae* never.

An important generic character, which will be of un-
doubted use in the future, is the form of the sternal plates*,
especially of the lobe of the metasternum.

* The value of these shields as a generic character was appreciated by
Scudder in 1876, though he failed to make very much use of them.

The posterior margin of the metasternal lobe is always sinuate or excavate in the Pygidicraninæ. It is invariably truncate in the Pyragrinæ, a very Labidurine feature.

The two curious genera *Anatelia* from the Canary Islands and *Challia* from Korea resemble the Pygidicraninæ in their general form and appearance, even to the compressed and carinate femora, but the lobe of the metasternal plate is straight, and the first seven or eight antennal segments do not agree. For the present they may be regarded as aberrant forms which may be most conveniently placed as a sort of appendix to the Pygidicraninæ.

The chief characteristics of the group are as follows:—

Antennæ with over 30 segments; 3 not much longer than 2; 4-7 short, not longer than 2, as broad as long, the remainder lengthening out to long and cylindrical.

Elytra quite flat on the dorsal surface, strongly folded, but usually with no keel; lateral surface hollowed; axillary angle of elytra weak, exposing a triangular scutellum of varying size. The pronotum is oval or rectangular, but longer than broad, it scarcely extends over the elytra.

The prosternum is narrowed behind the middle, then dilated on each side at the extreme base. Mesosternum subquadrate, the angles rounded and posterior margin truncate or rounded. Metasternum with lobe transverse, posterior margin sinuate or excavate.

Femora stout, compressed, and furnished with several carinulæ; tibiæ compressed; tarsi of various forms.

Table of Genera.

- | | |
|---|-------------------------------|
| 1. Corpus omnino apterum (tarsi graciles):
genus africanum | 1. <i>Dacnodes</i> , Burr. |
| 1.1. Elytra et alæ perfecte explicatæ vel abbreviatæ. | |
| 2. Tarsorum segmenta 1 et 2 depressa, brevia, valde dilatata | 2. <i>Tagalina</i> , Dohrn. |
| 2.2. Tarsorum segmenta 1 et 2 cylindrica, brevia vel longa (sæpius primo cylindrico, elongato). | |
| 3. Elytra ampla; scutello parvo, angusto. | |
| 4. Pronotum orbiculare (segmentum penultimum ventrale ♂ amplum) . | 3. <i>Pygidicrana</i> , Serv. |

They were neglected by later authors till Verhoeff employed the narrowing of the prosternum to characterize the Gonolabidæ, but the value of his work in this respect may be estimated when it is understood that he omitted to examine all available Gonolabidæ, with the result that his characterization of the family excludes the type of the genus *Gonolabis*!

- 4.4. Pronotum rectangulare.
 5. Segmentum penultimum ventrale
 ♂ latum, amplum 4. *Dicrana*, g. n.
 5.5. Segmentum penultimum ventrale
 ♂ angustum.
 6. Caput pronoto haud angustius. 5. *Cranopygia*, g. n.
 6.6. Caput pronoto angustius vel
 æque latum. 6. *Picrania*, g. n.
 3.3. Elytra brevia; scutellum amplum,
 transversum, pronotum latitudine
 æquans 7. *Pyge*, g. n.

Genus I. DACNODES, Burr.

There is nothing to add to the remarks on this genus in an earlier paper in Ent. Month. Mag. (2) xviii. p. 60 (1907).

Genus II. TAGALINA, Dohrn.

This genus seems to be rare; it is well characterized by the remarkable form of the tarsi. The two species are probably mere colour-varieties; one was redescribed and figured by me in 1902 (Termes. Füz. xxv. p. 477, pl. xx. fig. 1, ♂).

Genus III. PYGIDICRANA, Serv.

This genus is now restricted to the forms which approach the *P. marmoricrura*, Serv. It is confined to the species in which the scutellum is small, the organs of flight well developed, the pronotum oval and nearly round, and the penultimate ventral segment of the male broad and rounded.

Even in this restricted sense it retains the majority of the species and is represented in all tropical regions of the world.

The type is *P. v-nigrum*, Serv.

Table of Species.

1. Segmentum penultimum ventrale ♂ margine postice medio rotundato-emarginato (caput nigrum; elytra fusco-testacea): species africana 1. *biafra*, Borm.
 1.1. Segmentum penultimum ventrale ♂ margine postico leviter sinuato, vel rotundato, vel apice ipso depresso-canaliculato.
 2. Segmentum penultimum ventrale ♂ margine postico medio apice ipso canaliculo depresso instructum (colore fusco maculis variis lineisque fulvis ornato): species asiatica 2. *picta*, Guér.

- 2.2. Segmentum penultimum ventrale ♂
margine postico integro.
3. Segmentum penultimum ventrale ♂
margine postico leviter sinuato;
tarsi breves, segmento primo quam
tertium breviori: species americana. 3. *fiebrigi*, sp. n.
- 3.3. Segmentum penultimum ventrale ♂
late rotundatum; tarsi longi, gra-
ciles, segmento primo tertium
æquanti vel superanti.
4. Forcipis bracchia ♂ contigua, haud
arcuata.
5. Forcipis bracchia ♂ æqualiter
curvata: species australica. . . . 4. *dæmeli*, Dohrn.
- 5.5. Forcipis bracchia ♂ inæqualiter
curvata.
6. Forceps ♂ supra dente basali
armatus, brachio sinistro
haud angulato 5. *imperatrix*, Burr.
- 6.6. Forceps ♂ supra inermis,
brachio sinistro medio angu-
lato 6. *valida*, Dohrn.
- 4.4. Forcipis bracchia ♂ arcuata, sæpius
aream ovalem includentia.
5. Forcipis bracchia ♂ haud elongata,
fortiter curvata, ante apicem
margine interno dilatata.
6. Pronotum v-nigro-signatum;
elytra nigro-vittata: species
americana. 7. *v-nigrum*, Serv.
- 6.6. Pronotum et elytra fulva:
species asiatica 8. *pallidipennis*, Haan.
- 5.5. Forcipis bracchia ♂ elongata,
haud dilatata, ante apicem
dentata.
6. Elytra unicoloria.
7. Pronotum bivittatum: species
americana. 9. *forcipata*, Kirby.
- 7.7. Pronotum castaneum: species
celebensis 10. *celebensis*, Borm.
- 6.6. Elytra vittata vel maculata:
species asiaticæ.
7. Statura maxima; pronoti
vittæ postice confluentes . 11. *eximia*, Dohrn
- 7.7. Statura mediocri; pronoti
vittæ irregulares vel pa-
rallæ.
8. Statura majore (32-35
mm.); caput nigrum
macula irregulari occipi-
tali ornatum. 12. *marmoricrura*, Serv.
- 8.8. Statura minore (20-21
mm.); caput fulvum,
nigro-circundatum 13. *siamensis*, Dohrn.

Pygidicrana fiebrigi, sp. n.

Statura majore; caput nigrum; pronotum fulvum, vittis 2 fuscis haud parallelis ornatum; elytra brevia, nigra, anguste pallido-marginata; alæ breves, fulvæ; pedes fulvi, femoribus marmoratis, forcipis brachia ♂ basi depresso-triquetra, valida, in parte basali divergentia et attenuata; dehinc fortius arcuata, ante apicem margine interno incrassata et macronata.

	♂.
Long. corporis	24 mu.
„ forcipis	5.5 „

Large and powerful.

Antennæ black, with 30 segments, typical.

Head black.

Pronotum convex anteriorly, broadest at the shoulders, narrowed posteriorly.

Posterior margin truncate; about as broad as the head anteriorly; fulvous, with two broad black bands, which are divergent in the prozona and convergent posteriorly.

Scutellum triangular, fulvous.

Elytra rather short, black, with a very narrow yellow line along the lateral margins.

Wings short, yellow.

Feet yellowish, the femora marbled with fuscous; tarsi short and broad, the first segment shorter than the third.

Abdomen dilated posteriorly; last dorsal segment ample, smooth, with tawny pubescence and median suture; posterior margin truncate; penultimate ventral segment ample, broadly rounded, slightly emarginate in middle of posterior margin, exposing last segment at the corners.

Forceps ♂ with the branches subcontiguous at the base itself, depressed, triquetre, and stout, strongly diverging in basal half, then attenuate, and strongly bowed inwards; just before the apex incrassate, to form a depressed triangular projection, then straight and hooked at the apex.

Paraguay: San Bernardino (*C. Fiebrig*, S. V.) (cm. et Mus. Berol.; Jr. no. 1249/06).

Type in my collection.

Differs from *P. v-nigrum*, *P. forcipata*, *P. notigera*, and *P. egregia* in the black elytra; from *P. bivittata* in the angled bands on the pronotum; the forceps are of the same type as those of *P. v-nigrum* and *P. bivittata*, but differ in details.

Genus IV. DICRANA, nov.

A genere *Pygidicrana* differt pronoto subrectangulari, sæpius subquadrato; a genere *Cranopygia* differt segmento penultimo ventrali amplo, lato, rotundato.

Type, *Pygidicrana frontalis*, Kirby.

The rectangular pronotum readily separates the genus from *Pygidicrana*, but it only differs from *Cranopygia* in the broad, rounded, penultimate ventral segment.

The African species form a natural group with a very distinctive coloration. I have not examined an undoubted *P. caffra*, but it appears to resemble *P. bettoni* and its allies so closely that I do not hesitate to range it here.

P. kallipyga has marked affinities with *Cranopygia* in the form of the last dorsal segment and the forceps, but the penultimate ventral segment of the male is so broad and decidedly rounded that it is not possible to place it there; this is unfortunate, as its position near *D. finschi* appears hardly natural.

Table of Species.

- | | |
|---|-------------------------------|
| 1. Segmentum penultimum ventrale ♂ lateribus rectis, angulis rotundatis, margine postico leviter sinuato: species africanæ. | |
| 2. Forcipis brachia ♂ brevia, lata, fortiter arcuata. | |
| 3. Forcipis brachia ♂ ante apicem dilatata, laminam rectangularem efficiens | 1. <i>bettoni</i> , Kirb. |
| 3.3. Forcipis brachia ♂ ante apicem dente forti armata | 2. <i>caffra</i> , Dohrn. |
| 2.2. Forcipis brachia ♂ leviter arcuata. | |
| 3. Elytra vittis angustis 2 rufescentibus ornata | 3. <i>frontalis</i> , Kirb. |
| 3.3. Elytra macula pallida ornata | 4. <i>separata</i> , sp. n. |
| 1.1. Segmentum penultimum ventrale ♂ totum rotundatum. | |
| 2. Statura majore; capite rufo; segmentum ultimum dorsale ♂ angulis valde plicatis. | 5. <i>kallipyga</i> , Dohrn. |
| 2.2. Statura minore; capite nigro, flavo-notato: segmentum ultimum dorsale ♂ inerme. | |
| 3. Pronotum nigrum, albo-limbatum; elytra fusca, unicoloria | 6. <i>horsfieldi</i> , Kirby. |
| 3.3. Pronotum nigrum, flavo-marmoratum; elytra nigra, flavo-maculata | 7. <i>finschi</i> , Karsch. |

Dicrana separata, sp. n.

Statura medioeri; testacea, nigro-variegata; pronotum parallelum;

scutellum parvum; elytra ampla; alæ longæ; segmentum ultimum dorsale ♂ amplum quadratum; segmentum penultimum ventrale ♂ amplum, latum, margine postico medio leviter exciso, angulis late rotundatis; forcipis brachia ♂ basi remota, depressa, elongata, sensim arcuata, ante apicem dente interno forti armata. ♂.

Long. corporis	20	♂.	mm.
„ forcipis	4.5	„	„

Antennæ testaceous.

Head testaceous, with a black spot on the frons and a narrow black border round the occiput.

Pronotum parallel, longer than broad, subrectangular.

Angles rounded, testaceous, with two broad black bands.

Scutellum small, testaceous.

Elytra black, with a reddish-yellow discoidal spot in the anterior portion.

Wings yellow, faintly shaded with fuscous.

Feet testaceous, the femora indistinctly marked with fuscous; tarsi slender, first segment longer than third.

Abdomen blackish, with a fine dense pubescence.

Last dorsal segment ♂ ample, square, smooth, simple.

Penultimate ventral segment ♂ ample, broad, angles broadly rounded, posterior margin with a small median emargination.

Forceps ♂ with the branches depressed; at the base itself they are dilated, so as to be almost contiguous, but this portion is exceedingly short, and the branches appear to be remote at the base; they are rather slender, gently arcuate, and armed with a strong tooth near the apex on the inner margin.

German East Africa: Hinterland, ? Nguru (*Rohrberk*).
1 ♂.

This form is barely distinguishable from *P. frontalis*, Kirby, from the Cameroons; in that species the short apical portion of the forceps beyond the tooth is straight, in *P. separata* it is arcuate; in the latter the last dorsal segment is smooth (granulose in *P. frontalis*); the elytra of *P. frontalis* have two narrow reddish bands instead of a large oval spot.

In the form taken by Sjöstedt at Kilimandjaro (Burr, in Sjöstedt's 'Exped. Kilimandjaro,' 17. Orthopteren, I. Dermaptera, p. 3, pl. i. fig. 1, ♂, 1907) (Sjöstedt's specimen), the elytra have the whole anterior portion pale, and the last dorsal segment is not so smooth. At first I regarded

it as identical with *P. bettoni*, Kirby; since then I have been able to examine Kirby's types and Karsch's types of *P. caffra* in the Berlin Museum. There is an astonishing resemblance in colour and markings between these African species, *P. caffra*, *P. bettoni*, *P. frontalis*, *P. separata*; apart from the forceps they are practically indistinguishable, and the forceps differ in degree rather than in kind. Perhaps when a large amount of material can be examined together, it will be possible to arrange a series passing through all these forms from one extreme to another. For the present, however, it is convenient to give distinct names to the various types of forceps.

There are two chief forms—the depressed, rather short, and bowed forceps of *P. caffra* and *P. bettoni*, and the more elongate and slender forceps of *P. frontalis* and *P. separata*.

I am now inclined to think that Sjöstedt's specimens should be assigned, at least provisionally, to *P. separata*. It is certainly nearer to it than it is to *P. bettoni*, Kirby, in which the forceps approach rather to the type represented by *P. caffra*, Karsch.

Genus V. CRANOPIGIA, nov.

Pronotum subrectangulare, angulis ipsis rotundatis; segmentum penultimum ventrale ♂ angustum, lanceolatum, acuto-rotundatum; segmentum ultimum dorsale ♂ angulis externis utrinque in cristam acutam plicatum; ceteris cum genere *Pygidicrana* congruet.

Type, *P. cumingi*, Dohrn.

This genus will include those species with a narrow penultimate ventral segment and a subrectangular pronotum.

Table of Species.

- | | |
|--|-----------------------------|
| 1. Forceps ♂ superne dente cristato armatus; elytra rufescentia, nigro-limbata; pronotum vittis nigris 2 ornatum | 1. <i>cumingi</i> , Dohrn. |
| 1.1. Forceps ♂ superne inermis; elytra fusca; pronotum fusco-testaceum, lineis 3 pallidis | 2. <i>nietneri</i> , Dohrn. |

C. nietneri varies in depth of colour from light yellowish red to almost black; the curvature of the forceps also varies considerably; in one male in my collection the right branch is toothed and excavate on the inner margin near the apex; in the same specimen the apex of the penultimate ventral segment has a faint emargination which I cannot detect in other specimens.

Genus VI. PICRANIA, nov.

Caput angustum, pronoto haud vel vix latius; pronotum longum angustum, parallelum; elytra brevia; tarsi longi, graciles; abdomen angustum, fere parallelum.

Type, *Pygidicrana liturata*, Stål.

I erect this genus for the two species with narrow heads. *P. liturata*, Stål, from S. Africa and Diego Suarez, has a very characteristic appearance and coloration. The other species, *P. angustata*, Dohrn, from Ceylon, is only known from the female type in the Berlin Museum.

Table of Species.

- | | |
|---|------------------------------|
| 1. Abdomen in parte basali rufescens, lineis 4
nigris signatum: species africana | 1. <i>liturata</i> , Stål. |
| 1.1. Abdomen rufescens, fulvo-marmoratum:
species ceylonica | 2. <i>angustata</i> , Dohrn. |

Genus VII. PYGE, nov.

Pronotum subquadratum; scutellum amplum, transversum, pronotum latitudine fere aut omnino æquans, medio sulculatum; elytra brevia, angulo axillari excavato, hoc modo scutellum magnum liberantia; costa interdum carinata; alæ rudimentariæ; pedes breves; femora compressa; tarsi breves, haud tenues, segmento primo tertium æquanti vel subbreiori; segmentum ultimum dorsale amplum; segmentum penultimum ventrale angustum, rotundato-acutum; forcipis braccia ♂ ♀ brevia, contigua, depressa.

Type, *Pygidicrana modesta*, Borm.

This genus is formed for the reception of those species in which the elytra are excavated at the axillary angle, thus exposing the characteristic ample scutellum. The elytra are also short and narrow. There is sometimes a distinct keel on the costal margin; the wings are abortive, sometimes represented by a pair of leathery flaps showing under the shortened elytra.

The species are confined to the Oriental and Australian Regions, and do not appear to be common.

They are of relatively small size and the colour is usually dull brown or black, sometimes relieved by some yellow.

Table of Species.

- | | |
|---|-------------------------------|
| 1. Scutellum tam latum quam pronotum. | |
| 2. Pronotum bivittatum | 1. <i>vitticollis</i> , Stål. |
| 2.2. Pronotum haud bivittatum. | |
| 3. Pronotum scutellum elytra rufescentia. | 2. <i>piepersi</i> , Burr*. |

* 'Notes from the Leyden Museum,' xxx. p. 95 (1908).

- 3.3. Pronotum nigrum, flavo-signatum.
 4. Prozona nigra, metazona flava,
 nigro-maculata..... 3. *atriceps*, Kirby.
 4.4. Pronotum nigrum, utrinque flavo-
 limbatum 4. *modesta*, Borm.
 1.1. Scutellum pronoto brevius 5. *ophthalmica*, Dohrn.

Pyge atriceps, Kirby.

P. atriceps, Kirby, is a curious species, in which the pronotum has a very characteristic coloration; the prozona is entirely black and the metazona clear yellow, with an ill-defined black spot in the centre. At first glance it appears that the wing-scales are yellow; as a matter of fact, it is the first dorsal segment which is clear yellow and shows up beyond the very short elytra, which are quite black, so that this yellow segment is in striking contrast, especially as the rest of the abdomen is black. The wings themselves are present as small black leathery flaps, just exposed under the costa of the elytra. This appearance is so deceptive that it misled Kirby, who described the wing-scales as yellow, an easy slip to make. The elytra themselves are rather narrowed at the apex, and the surface is scabrous. The fold separating the dorsal from the lateral surfaces is marked by a row of granulations that form a keel.

The species is described from Rockhampton in Queensland. I have two from the Mallee District in Victoria.

It is possible that this species is identical with *P. ophthalmica*, Dohrn, recorded from Moreton Bay (Queensland) and also from Tenasserim, but the examples from the latter locality may prove to be distinct.

The following species which have been included in *Pygidicrana* remain to be ranged in this system:—

- P. guttata*, Borm. (Celebes): probably in *Dicrania*. *P. quadriguttata*, Kirby, is a synonym.
P. papua, Borm. (New Guinea): probably in *Pygidicrana*.
P. peruviana, Rehn (Peru), is a *Pyragra*, judging from the illustration.
P. livida, Borelli (East Africa): the male is unknown; probably in *Dicrania*.
P. egregia, Kirby (Brazil): male unknown; apparently allied to *P. v-nigrum*.
P. bivittata, Erichs. (Brazil): apparently related to *P. v-nigrum*.

P. notigera, Stål (Brazil), is only known to me by the description; it is probably a true *Pygidicrana*.

P. caffra, Dohrn, and *P. demeli*, Dohrn, are only known to me by their description and by drawings; the position which I have allotted them by analogy may well be correct.

P. abnormis, Borm., is the type of *Tomopygia*, Burr (1904).

P. büttneri, Karsch, is the type of *Karschiella*, Verhoeff.

MISCELLANEOUS.

Contributions towards a Revision of the Genus Lomanotus : a Postscript.

I REGRET to find that the survey of the literature of the genus *Lomanotus* given in the paper which appeared under the above title in the August issue of these 'Annals' is incomplete, in so far as it includes no reference to Sir C. Eliot's valuable "Notes on some British Nudibranchs," contributed to vol. iii. of the 'Journal of the Marine Biological Association' in 1906. Unfortunately the existence of these "Notes" did not come to my knowledge until some three weeks after the appearance of the August issue of the 'Annals.' Having read the section of the "Notes" dealing with *Lomanotus* (pp. 348-353) I find it necessary to alter my views as to the position of *L. portlandicus*. Hancock's unpublished drawings show that this species possesses what appears to be the most important specific character of Trinchese's *L. cisigii*, a fin-like caudal process, so that the two species may be considered as identical. While still retaining two species in the genus, I desire, then, to alter the arrangement proposed in the August number of the 'Annals' (pp. 217-218) to the following, *L. portlandicus* (1860) taking precedence of *L. cisigii* (1883):—

(1) *L. marmoratus*, Ald. & Hancock. (1845).

L. genéi, Vérany (1846).

L. hancocki, Norman (1877).

(2) *L. portlandicus*, Thompson (1860).

L. cisigii, Trinchese (1883).

Whether this provisional arrangement is to stand will depend on the value that may be conceded as a specific distinction to the fin-like caudal process of the second species as described by Trinchese and figured by Hancock.

N. COLGAN.